1: Pelzer S-5 (1940-1941) 1945 AL1 Southeast Asia AL1

estation is not a discovery of Western-trained scientists but has long been practiced by certain groups in Southeastern Asia. It was the plan of the government to spread and enforce this practice of artificial reforestation wherever advisable. This practice, whereby the cultivator determines the vegetative cover during the fallow period instead of abandoning the ladang to chance growth, brings him to a transition stage between shifting cultivation and permanent cultivation. From there the step to permanent cultivation with crop rotation is but a short one.

Permanent cultivation requires repeated tilling and therefore more labor and tools than the shifting cultivator is accustomed to. Work animals are also desirable. An important obstacle to intensification of agriculture in wide areas of Southeastern Asia, however, is the fact that hill and mountain regions [up to about 1500 meters in elevation] are frequently infested with malaria so that the energy of the people is greatly reduced.[45] Moreover, the acquisition of such implements as plows, harrows, and hoes, and especially of work animals, calls for financial resources or credit, both of which the average shifting cultivator lacks. Some shifting cultivators do own livestock, such as cattle or carabaos, but utilize neither their labor nor their manure. Groups of the Mois in the mountains of Annam have carabaos, but they do not use the animals in their agricultural activities because they "cannot talk" to them.[46] On the Lesser Sunda Islands livestock is kept because it gives social prestige to the owner. Overstocking of the pasture areas on these islands has led to overgrazing and has cut into the forest area until there has developed a scarcity of land suitable for ladang cultivation. The same has happened in large areas in Africa. There it has been necessary to teach the native peasant the use of cattle and make him familiar with the plow. This was done successfully in northern Nigeria by combining the animal husbandry of the nomadic Fulani with the indigenous shifting cultivation of the Hausa peasant, thus developing "a system of permanent farming whereby a man with cattle of his own, say two working oxen and a few cows, can plough and maintain in fertility an area of land sufficient to supply all the requirements of himself and his family, and to obtain a surplus balance as a return for his labour. . . . Thus mixed farming represents a gradual evolution from the shifting methods of cultivation to a static type of agriculture, by the introduction of animal husbandry, and with the use of animal cultivation."[47] Above all, the peasant learns to preserve the animal manure and

a shade tree; *Dolichos lablab* L., a climbing herb which is valuable as a vegetable; *Crotolaria anagyroides* H.B. and K., a bush of vigorous growth which attains a height of from 12 to 14 feet and forms an excellent green manure; *Tephrosia candida* DC. and *Tephrosia vogelii* Hook., low shrubs useful as green manures; and *Mimosa invisa* Mart., a leguminous creeper which suppresses grasses.

[45] Gourou: L'utilisation du sol, 1940, pp. 181 and 350.

[46] *Ibid.*, p. 354.

[47] King: "Mixed Farming in Northern Nigeria," 1939, p. 271. See also Faulkner and Mackie: West African Agriculture, 1933; and by the same authors: "The Introduction of Mixed Farming in Northern Nigeria," 1936, pp. 89–96.

5: Dobby K-4 (no date) 1950 ALI Southeast Asia ALI

and deltas have changed; areas which once were shallow sea have become sedimented to swamps, a process by which Cambodia has been cut off as the Lower Mekong built up mud-flats isolating Tonle Sap from contact with the sea. The evolution of new routes has caused some old centres of power to fade into mere fishing villages, evidenced in the decline of Takhola and Bandon after the sea route through the Straits of Malacca became more generally

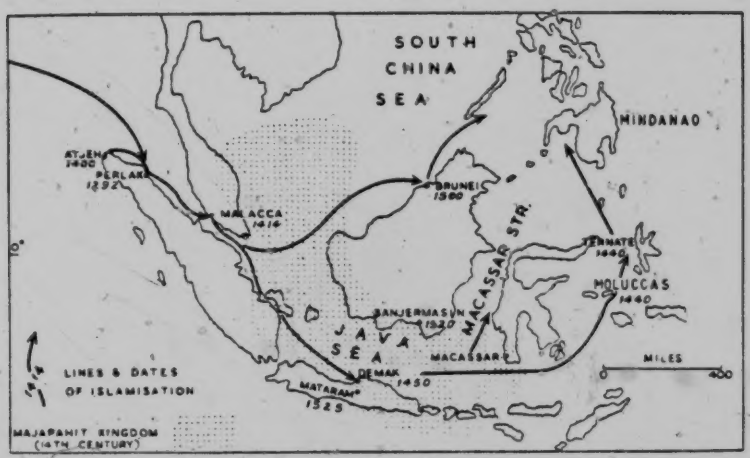

FIG. 114.—Historic Pattern of Southeast Asia at the Islamisation Period

used than that across Kra. Plagues have laid waste whole cities, as when Uthong in about 1350 was devastated by cholera and its population fled. The region is still one where malaria, dysentery, cholera and plague are endemic, more especially in the older, more congested territories like Java. These diseases have frequently flared up into appalling epidemics killing thousands of people, epidemics reflecting a relation between bacteria and the climate (which encourages bacterial reproduction), the population density, the difficulties of sewage disposal and social habits of indifference to hygiene (which has no ill effects among lonely settlements in the forest but becomes a social menace in towns). Fevers and virulent diseases have frequently ravaged the local people, debilitated them, and wiped out their settlements. The region is strewn with ruins of towns now abandoned, and with ruined groups of people who have degenerated physically by disease and under-nourishment. Southeast Asia proved capable of engulfing rather than enshrining those moving into it to live.

7: Furnivall G-4, 5. (no date) 1948 ALl Southeast Asia ALl

and prevention of tropical disease which revolutionized or rather created the science of tropical medicine. The Malay States were able to take advantage of this situation without having first to spend large sums in remedying the effects of previous indifference. Tin, and later, rubber provided revenue on a scale which many older colonies lacked; and the administration was generous and far-sighted in its expenditure.'[1]

Moreover, in comparison with many tropical dependencies, the area of the Malay States is small, and the population, though not dense, is mainly concentrated in certain areas, and therefore the people as a whole are readily accessible. The local Sultans are men educated on modern lines, who can appreciate western medicine and can use their influence to recommend it to their people. Probably there is no region in the tropics where conditions are so favourable to the improvement of public health as in the Malay States.

As we have noticed, the rural population is said formerly to have enjoyed general good health. Tuberculosis was almost unknown until fostered by the congestion in the towns consequent on economic development. Similarly venereal diseases have multiplied with the mass importation of male coolies. The rice plains, in which most of the people lived and worked, 'were practically free from malaria'.[2] But when mines and rubber land were opened up to western enterprise, malaria was a formidable obstacle. Klang, the station at the coastal end of the railway to the mines, was very malarious, and the adjacent shipping centre, Port Swettenham, was so deadly that the Government directed its abandonment. But campaigns against malaria proved successful at both these places, and were extended to other towns.[3] At that time rubber plantations were being laid out, and malaria took a heavy toll among both Europeans and coolies, 'as high as one-fifth of the labour force'. Measures for the prevention of malaria were accordingly extended from the towns to rural areas. In 1910 a separate Health Branch of the Medical Departments was established to supervise anti-malarial and other health work in the interior, but its operations were hindered by the lack of adequate control over labour conditions. In 1912 accordingly the numerous separate ordinances for different classes of immigrants were consolidated in a Labour Code, which has since then regulated the conditions of labour on the plantations and mines. 'In earlier years some managers opposed the "interference" of the Health Branch, and failed to realize the

[1] Mills, p. 298.
[2] *Ib.* p. 301.
[3] *Ib.* pp. 299ff., 328.

7: Furnivall G-4, 5 (no date) 1948 ALI Southeast Asia ALI

economic value of maintaining their labourers in good health.' The opposition, however, had some justification, as the measures that had proved efficacious in preventing malaria in the towns, had a contrary effect on the plantations, and 'resulted merely in heavy expenditure and increased mortality'. Patient research discovered and removed the defects, and by 1935 the protection against malaria was as complete on the larger estates as in the towns.[1] Another disease that has received special attention is hookworm. This is generally prevalent, and a special element of contagion exists in the Indian estate labourers, among whom a high percentage are infected, despite the treatment given to immigrants at the quarantine stations. It is not serious in itself, but it causes physical and mental fatigue, and consequently reduces the efficiency of labour. Strict provisions in the Labour Code regulated sanitary conditions on the plantations, but they were sometimes disregarded, especially on Indian properties. A campaign against the disease from 1926 to 1929, partly financed by the Rockefeller Foundation, effected a temporary improvement, but probably its chief permanent value was to direct renewed attention to the importance of rural sanitation. The Government decided accordingly to enlarge the health service, to enforce the Labour Code more strictly on estates, to provide sanitary latrines in rural schools and other Government buildings, and to persuade the villagers to build latrines and wear shoes.[2]

The beneficent activities of the public health service have gained the confidence of European employers, who now recognize its value in improving the health and enhancing the efficiency of their employees, and many provide hospitals and other amenities in excess of official requirements. But 'many Asiatic-owned plantations frequently evade the regulations, and have to be closely supervised by the Health Branch. They are a menace to their neighbours who have obeyed the regulations'. Yet the chief difficulty has been among the villagers, who 'are the worst offenders against the anti-malarial and other health measures and require constant supervision'.[3] They can be compelled or encouraged to build latrines, but, as has been found also in Java and Ceylon, they cannot be compelled to use them. In the towns shoes are a sign of higher social status, and every one wears them who can afford the money, but Government pressure has met with little success in inducing the villagers to wear shoes, which

[1] Mills, pp. 225, 234, 299, 300.
[2] *Ib.* 234, 316, 17.
[3] *Ib.* pp. 234, 316–17; *Netherlands India*, p. 363.